

ABSTRACT OF THE DISCLOSURE

A quartz etalon having light reflecting film layers on the Z-cut surfaces and electrode layers on the X-cut surfaces are axially supported in the X-cut surface electrode layers. A dither signal is applied to this axially supported portion to resonate the etalon. In this state, laser-beam is transmitted through the Z-cut surfaces of the etalon. The transmitted light is photo-electrically converted and subjected to synchronous detection by a dither signal. On the basis of an error signal obtained by the detection output, the oscillation wavelength of the semiconductor laser is controlled. Since the etalon resonates as its axially supported central portion functions as a node, the mechanical loss is small, and the Q value upon mechanical resonance is extremely large. This makes the synchronous detection output about 100 times as large as the conventional value. This increases the signal-to-noise ratio of the photoelectric conversion signal, and increases the wavelength accuracy.